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Mark Honore Shellans

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LAW OFFICE OF DALE B. HALLING  
3595 FOUNTAIN BOULEVARD SUITE A2  
COLORADO SPRINGS, CO 80910

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HOLLOWAY III, EDWIN C

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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* MARK HONORE SHELLANS

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Appeal 2009-007127  
Application 10/624,661  
Technology Center 2600

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DECISION ON APPEAL<sup>1</sup>

Before KARL D. EASTHOM, ELENI MANTIS MERCADER, and  
BRADLEY W. BAUMEISTER, *Administrative Patent Judges*.

EASTHOM, *Administrative Patent Judge*.

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<sup>1</sup> The two-month time period for filing an appeal or commencing a civil action, as recited in 37 C.F.R. § 1.304, or for filing a request for rehearing, as recited in 37 C.F.R. § 41.52, begins to run from the “MAIL DATE” (paper delivery mode) or the “NOTIFICATION DATE” (electronic delivery mode) shown on the PTOL-90A cover letter attached to this decision.

## STATEMENT OF THE CASE

Appellant appeals<sup>2</sup> under 35 U.S.C. § 134 from the rejection of claims 1-20. No other claims are pending. (Br. 3.) We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

### *The Disclosed Invention*<sup>3</sup>

The disclosed invention includes an electromagnetic transmitter having an output and a “modulating tag [that] embeds an information signal on a reflection of the output . . . .” (Spec. 2:10-12.) “The modulating tag includes a tamper proof system. A receiver receives the reflection having the information signal. The receiver has a received output. A processor is coupled to the received output and decodes the information signal.” (*Id.* at 2:12-16.)

One embodiment of the invention:  
uses the polarization of the reflected signal to carry the information. A source 122 transmits an electromagnetic wave 124 having a certain polarization 126. The electromagnetic wave impinges on the tag 128. The tag 128 alters the polarization 130 of the reflected wave 132. A receiver 134 has an antenna 136 connected to a splitter 138. The splitter 138 is connected to an x-polarization filter 140 and a y-polarization filter 142. . . . The magnitude of the x & y signals are compared by a comparator 148 and the output 150 provides the information.  
(*Id.* at 10:11-22.)

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<sup>2</sup> Appellant’s Appeal Brief (filed April 13, 2007) (“Br.”) and the Examiner’s Answer (mailed July 3, 2007) (“Ans.”) are referenced here.

<sup>3</sup> The ensuing description constitutes findings of fact.

Exemplary claim 8 follows:

8. A tagging and tracking system, comprising:
  - a plurality of modulating tags each attached to one of a plurality of mobile units;
  - a plurality of electromagnetic transmitters positioned in a plurality of key locations;
  - a plurality of receivers, one of the plurality of receivers receiving a reflected signal from one of the plurality of modulating tags; and
  - a database coupled to the plurality of receivers comparing the reflected signal to a predetermined signal.

The Examiner relies on the following prior art references:

Mish	US 6,025,784	February 15, 2000
Pidwerbetsky	US 6,084,530	July 4, 2000
Seal	US 6,396,438 B1	May 28, 2002
Shaw	US 6,563,417 B1	May 13, 2003

Claims 8-10 and 12 stand rejected under 35 U.S.C. 102(b) as anticipated by Pidwerbetsky.

Claims 1-7 and 15-20 stand rejected as obvious under 35 U.S.C. 103(a) based on Pidwerbetsky and Seal.

Claim 11 stands rejected as obvious under 35 U.S.C. 103(a) based on Pidwerbetsky and Shaw.

Claim 13 stands rejected as obvious under 35 U.S.C. 103(a) based on Pidwerbetsky and Mish.

Claim 14 stands rejected as obvious under 35 U.S.C. 103(a) based on Pidwerbetsky, Mish, and Shaw.

## ISSUES

Appellant's responses to the Examiner's positions present the following issues:

1. Did the Examiner err in finding that Pidwerbetsky discloses a receiver "receiving a reflected signal" as recited in claim 8?
2. Did the Examiner err in finding that the combination of Pidwerbetsky and Seal renders obvious claims 1-4, 6, and 7?
3. Did the Examiner err in finding that the combination of Pidwerbetsky and Seal renders obvious a modulating tag that embeds an information signal that "is a polarization modulated signal," as recited in claim 5, and a tag "capable of modulating a polarization of a received signal," as recited in claim 15?

## FINDINGS OF FACT (FF)

### *Pidwerbetsky*

1. Pidwerbetsky discloses a system including "an Interrogator for generating and transmitting a radio signal." (Col. 2, ll. 31-33.) The system also includes one or more tags using backscatter modulation to "modulate the reflection of the radio signal using a subcarrier signal, thereby forming a reflected modulated signal." (*Id.* at ll. 33-37.) According to Pidwerbetsky, typical prior art backscatter systems function as follows: "[T]he Interrogator . . . transmits a Continuous-Wave (CW) radio signal to the Tag. The Tag then modulates the CW signal using modulated backscattering where the antenna is electrically switched, by the modulating signal, from being an absorber of RF radiation to being a reflector of RF radiation." (Col. 1, ll. 49-52.)

2. Similarly, the tags in Pidwerbetsky's system form a reflected modulated signal by "for example, switching on and off the Schottky diode of Detector/Modulator 302 using the Modulated Subcarrier Signal 311, thereby changing the reflectance of Antenna 301." (*Id.* at col. 4, ll. 21-24.)

3. The Modulated Subcarrier Signal 311 is produced by modulating "a subcarrier frequency generated by the Frequency Source 308. . . . which may be a crystal oscillator." (*Id.* at ll. 11-13.)

4. The "Interrogator 103 receives the reflected modulated signal with the Receive Antenna 206 . . . ." (*Id.* at ll. 33-34.)

*Seal*

5. Seal discloses a "system and method for determining the position of a radio frequency identification (RFID) transponder with respect to a sensor." (Abstract.)

6. To reduce sensor rejection by the tag, "[e]ach signal generated by the sensor array must have a different polarization." (Col. 14, ll. 26-27.) "Since there are only three spatial dimensions, a signal polarized to each of these three dimensions (i.e., X, Y, and Z) will account for all spatial orientations." (*Id.* at ll. 27-30.) Seal employs different antenna orientations to transmit different spatial polarizations which carry phase information. (*Id.* at ll. 23-40; *see* Fig. 11 (*e.g.*, antennas 1002 and 1032 for transmitting different polarizations).)

7. When someone tampers with a tag, it generates "alert messages." (Col. 18, ll. 35-37.)

## PRINCIPLES OF LAW

The Examiner bears an initial burden of factually supporting an articulated rejection. *In re Oetiker*, 977 F.2d 1443 (Fed. Cir. 1992). “It is axiomatic that anticipation of a claim under § 102 can be found if the prior art reference discloses every element of the claim.” *In re King*, 801 F.2d 1324, 1326 (Fed. Cir. 1986). In addition, ““there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.”” *KSR Int’l Co. v. Teleflex, Inc.*, 550 U.S. 398, 418 (2007) (citation omitted). On appeal, Appellant may rebut the Examiner’s findings and reasoning with opposing evidence or argument. Failure to do so may constitute a waiver of potential arguments. *See Ex parte Frye*, 94 USPQ2d 1072, 1075 (BPAI 2010) (precedential) (“If an appellant fails to present arguments on a particular issue — or, more broadly, on a particular rejection — the Board will not, as a general matter, unilaterally review those uncontested aspects of the rejection.”); *Hyatt v. Dudas*, 551 F.3d 1307, 1313-14 (Fed. Cir. 2008) (The Board may treat arguments appellant failed to make for a given ground of rejection as waived); 37 C.F.R. § 41.37(c)(1)(vii).

## ANALYSIS

### *Issue 1- Claims 8-14*

Appellant asserts that Pidwerbetsky does not anticipate claim 1 because “Pidwerbetsky does not receive a reflected signal.” (Br. 8.) Appellant similarly asserts that Pidwerbetsky does not anticipate claims 9 and 10 because it “clearly does not modulate the reflected signal.” (*Id.*) With further respect to claim 8, Appellant argues that the tag in

Pidwerbetsky modulates a signal that it generates (*i.e.*, signal 308), “not the reflected signal.” (*Id.*) In a related argument, Appellant also argues that the tags in the present invention are not RFID tags and that Pidwerbetsky “is clearly about modulating the signal 308 generated by the tag, not the reflected signal.” (Br. 12.)

As found by the Examiner, however, Pidwerbetsky does disclose “a receiver receiving a modulated reflected signal via receive antenna 206 in col. 4 lines 18-37 and fig. 2.” (Ans. 14; *accord* FF 1 and 4.) As also found by the Examiner, the tag in Pidwerbetsky does, in fact, modulate the reflected signal: “modulator 302 modulates the RF signal from the interrogator with the subcarrier signal to produce a modulated reflected (or backscatter) signal.” (Ans. 15; *accord* FF 1-3.) Pidwerbetsky’s system changes the antenna reflectance in accordance with a modulation signal, “thereby forming a reflected modulated signal.” (FF 1.)

Notwithstanding Appellant’s arguments, claim 8 does not preclude RFID tags or further modulation of a generated signal. As Appellant acknowledges, Pidwerbetsky’s system includes tags that produce modulated backscatter (*i.e.*, modulation of a reflected wave). (*See* Br. 12; *accord* FF 1.) The Examiner also found that Appellant’s “disclosed invention includes a ‘tag’ that modulates an ‘ID’ on a electromagnetic waves . . . corresponding to an RFID tag.” (Ans. 18.) Appellant does not explain how this finding is in error or otherwise explain how the claimed invention precludes Pidwerbetsky’s tags (even if they are RFID tags).

Appellant also argues that “there is no detector or clock recovery as in Pidwerbetsky. In fact the tag does not receive an information signal.” (Br. 8.) As the Examiner reasoned, these arguments are not commensurate in



scope with claim 8 because the limitations argued are neither recited nor implicitly contained therein. (*See* Ans. 15.)

Therefore, we will sustain the Examiner's rejection of claims 8-10, and, also, the rejections of claims 11-14, which depend from claim 8, because Appellant did not present separate patentability arguments for these dependent claims. (*See* Br. 9, 11-12.) *See In re Nielson*, 816 F.2d 1567, 1572 (Fed. Cir. 1987) (grouping together claims rejected based on different references.)

*Issue 2 – Claims 1-4 and 6-7*

Appellant argues that claim 1 is patentable over the combination of Pidwerbetsky and Seal because neither “show[s] or suggest[s] modulation of a reflected signal.” (Br. 9.) As explained above in the discussion of claim 8, however, the tag in Pidwerbetsky does modulate a reflected signal.

Appellant argues that claim 3 is patentable over Pidwerbetsky and Seal because Pidwerbetsky does not disclose an information signal that is periodic, as required by claim 3. (Br. 9.) As found by the Examiner, however, the information signal disclosed in Pidwerbetsky (*i.e.*, the Modulated Subcarrier Signal) is periodic because it is generated from a single frequency subcarrier that is periodic. (Ans. 16; *accord* FF 3.)

Appellant also argues that the BPSK signal “is not the information signal. This is just how the information signal is modulated.” (Br. 9.) But the Examiner, however, did not identify BPSK as the information signal. Rather, the portion of Pidwerbetsky cited by the Examiner merely identifies BPSK as one of many possible schemes that can be used to modulate a subcarrier. (Ans. 6.)

Therefore, we will sustain the Examiner's rejection of claims 1 and 3, and also, the rejection of claims 2, 4, 6, and 7, which are dependent from claim 1, because Appellant did not present separate patentability arguments for these claims.

*Issue 3 - Claims 5 and 15-20*

Claim 5 depends from claim 1, and claim 1 recites "a modulating tag embedding an information signal on a reflection of the output from the electromagnetic transmitter." Claim 5 requires that the "information signal is a polarization modulated signal." Appellant asserts that claims 5 and 15 are not obvious over the combination of Pidwerbetsky and Seal. (Br. 9-10.) Appellant particularly argues that Seal "does not change the polarization to encode information onto the signal." (*Id.* at 10.) With respect to claim 15, Appellant makes a similar argument: "The portion of Seal (Col. 14, lines 26-34) pointed to by the Examiner just sets the polarization, it does not change the polarization to encode information onto the signal. The present application has nothing to do with RFID tags." (Br. 10.)

The latter assertion regarding RFID tags is addressed *supra*. With respect to the lack of encoding, the Examiner reasoned that claim 5 does not require "chang[ing] the polarization to encode information" and therefore [t]he combination of Pidwerbetsky and Seal would include a [sic] interrogation signal with different polarizations (col. 14 of Seal) so that the reflection of such interrogation signal (col. 4 of Pidwerbetsky) would provide a polarization modulated signal as claimed." (Ans. 17.) The Examiner made similar findings with respect to claim 15. (Ans. 17.)

The Examiner is correct to the extent that claims 5 and 15 do not recite encoding. The claims do require changing the polarization.

Appellant's remark that the passage relied upon by the Examiner just sets the polarization of a transponder is not supported because Seal's system also embeds phase information into the polarized waves. In other words, Seal does disclose changing the polarization to carry information (via phases) in a transmitting antenna pair. (*See* FF 6).

In simple terms, the Examiner's proposed modification appears to be a "mere substitution" of one type of modulation for another with predictable results, *see KSR Int'l Co. v. Teleflex, Inc.*, 550 U.S. 398, 416 (2007)(citation omitted), or similarly, the "mere application of a known technique to a piece of prior art ready for the improvement," *id.* at 417. That is, the Examiner found that Seal teaches "different polarization phases by switching on/off different antennas corresponding to different polarization phases that would have been obvious in the tag of Pidwerbetsky to provide tag location and is suggested by Pidwerbetsky (col. 4) including phase modulation by switching at the tag antenna to change the reflectance of the antenna." (Ans. 18.)

Appellant's brief arguments do not demonstrate that anything more than a mere substitution or application of prior art techniques with predictable results is involved in the rejection. Appellant also does not challenge the Examiner's reason for making the substitution – to provide tag location. (*See* Br. 10.)

Accordingly, we will sustain the Examiner's rejections of claims 5 and 15, and the rejections of claims 16, 18 and 20 that depend from claim 15, because Appellant did not present separate patentability arguments for the latter claims.

With respect to claim 17, Appellant argues that Seal discloses only a tamper detector 1410 and "does not state that it sends a tamper signal." (Br.

10.) This argument is not persuasive. The Examiner does not rely on the detector 1410 as sending (i.e., “reflect[ing]”) the “tampered signal” required by claim 17. The Examiner cited the detector to buttress the finding that Seal’s tag (transponder) sends the tamper signal – i.e., to the detector. (*See* Ans. 10.) As found by the Examiner, Seal discloses that the tag sends “a tamper signal or ‘tamper alert message’ in col. 18 lines 33-46.” (Ans. 18; *accord* FF 7.)

Regarding claim 19, Appellant’s argument that the information signal in Pidwerbetsky is not a periodic signal is not persuasive for the reasons expressed *supra* with respect to claim 3.

Accordingly, we will also sustain the Examiner’s rejections of claims 17 and 19.

### CONCLUSION

The Examiner did not err in finding that Pidwerbetsky discloses a receiver “receiving a reflected signal” as recited in claim 8. The Examiner did not err in finding that the combination of Pidwerbetsky and Seal renders obvious claims 1-4 and 6-7. The Examiner did not err in finding that the combination of Pidwerbetsky and Seal renders obvious a modulating tag that embeds an information signal that “is a polarization modulated signal” as recited in claim 5 and a tag “capable of modulating a polarization of a received signal,” as recited in claim 15.

### DECISION

We affirm the Examiner’s decision rejecting claims 1-20.

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Application 10/624,661

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136. *See* 37 C.F.R. § 1.136(a)(1)(v) (2010).

AFFIRMED

LAW OFFICE OF DALE B. HALLING  
3595 FOUNTAIN BOULEVARD, SUITE A2  
COLORADO SPRINGS, CO 80910